

five fathoms, in soft mud, along with a quantity of *Virgularia* and *Pennatula*. It proved, on examination, to be a young male, seemingly half-grown, as the claws had not as yet attained the size characteristic of the adult. The nature of the ground from which the specimen was taken would seem to corroborate the statement of Cranch, as quoted by Bell, "that they live in the hardened mud, and that their habitations, at the extremities of which they live, are open at both ends." The second species above mentioned was taken off the lighthouse situated on the north coast of Mull, on stony ground, at a depth of about fifteen fathoms, and seemed, from its small size, to be also an immature specimen.

A third species was also obtained, which, though by no means so uncommon as the two preceding, seems worthy of mention. This is the spinous shrimp (*Crangon spinosus*, Bell), a specimen of which was taken at the entrance to Loch Sunart, at a depth of twelve or fourteen fathoms, and proved to be an adult of large size.

No other specimens of either of these species were obtained, although the various localities were carefully dredged on several occasions during a month's residence in that quarter: so that the different species would seem to be by no means abundant in that neighbourhood.

As previously remarked, the two first-mentioned species do not seem to have been before observed on the Scottish coast, while the latter seems only to have been taken in Shetland. I have therefore thought that it might be of interest to mention their occurrence on the west coast, more especially at a time when so much attention is being directed to the elucidation of the laws governing the distribution of different species of marine animals.

Spatangus meridionalis, Risso.

My friend Dr. Mörch of Copenhagen, who is now at Nice for his health, has just given me some information which may serve to decide the question whether the above-named species is the *Spatangus Raschi* of Lovén or merely the *S. purpureus* of Müller. Dr. Mörch says that at my request he has examined Risso's collection, that he found among the unpublished drawings of that author a figure of *S. meridionalis* very like *S. purpureus*, and that in the collection were several specimens of the latter species with a label on which was written "Mon *Spatangus meridionalis* est le Sp. *purpureus*, Lam."

J. GWYN JEFFREYS.

Note on the Arrangement of the Pores or Afferent Orifices in Cliona celata, Grant. By M. LÉON VAILLANT.

In the month of October last I had the opportunity, thanks to the kindness of M. Lemaitre, of Cancale, of witnessing the dredging of the oyster-beds for the annual inspection. This circumstance enabled me to observe in the living state that singular sponge which perforates the shells of certain Mollusca, the *Cliona*

celata, which, since the time of Grant, has so often attracted the attention of naturalists. In studying these creatures, immersed in the water immediately after they were taken from the dredge, so as to approach as nearly as possible to the conditions of natural life, it appeared to me that we had hitherto described and interpreted in an incomplete manner the nature of the prolongations or papillæ which the *Clione* emit through the perforations of the oyster-shells, and the very perceptible although not very rapid movements of which have struck all those who have been able to examine these animals.

The prolongations are of two sorts. Some (the only ones well seen by previous authors) are hemispherical, more rarely cylindrical, and perforated at their summit; at this point there is, in fact, a wide opening, which may attain as much as 1 millim. in diameter: it is the orifice of a canal traversing the whole papilla and communicating with the ducts which in this as in all the other sponges traverse the parenchyma in all directions. The prolongations of the second kind, which are much more numerous than the preceding, have an entirely different form, which may be compared to that of the rose of a watering-pot; they are in the shape of a reversed truncated cone, so that on leaving the perforation they enlarge gradually, and terminate in a very elliptical convex surface: this is not widely perforated, but presents an elegant network of fibres anastomosing in all directions, which are formed of bundles of spicula covered with sarcode. The fine meshes of this net form so many apertures which open by short conduits into a central canal, situated, as in the prolongations previously described, in the centre of the papilla, and terminating in the same way in the general system of internal irrigation.

These second prolongations of the *Clione* were certainly seen by Grant; but he described them as being the transitory state of the papilla just before its opening widely. From my observations, repeated and followed up long enough to allow me to present them with confidence, this is not the case: the surface of the perforated shell always presents side by side with papillæ of the first kind others constructed upon the second type; and in individuals which I have preserved living and active for nearly twenty days, I was even able to demonstrate that, after taking them from the water (which is a certain means of causing the prolongations to be retracted), on replacing them in the aquaria after some time, the same perforations always give passage to papillæ of the same kind. We might imagine, considering the simplicity of the structure of these creatures, that in certain cases changes might take place; but I have not observed any.

We may conclude, from this arrangement, that, in *Cliona celata*, whilst the papillæ with wide perforations are, as has long been ascertained, the oscula or efferent orifices of the current of water which continually traverses the parenchyma of the sponge, the papillæ of the second kind bear, collected upon their widened surface, the afferent orifices or pores. It is to be remarked that hitherto,

whilst indicating the efferent apertures, no one appears to have thought of seeking the orifices of entrance, which, however, could not occur, as usual in the other sponges, upon the general external surface, as this, being immediately applied against the walls of the cavities which the *Cliona* inhabits, is not in contact with the ambient fluid. If this exceptional arrangement of the pores exists likewise, as is probable, in the allied species, we may find in it an anatomical character for this genus, which has hitherto been founded exclusively upon the biological fact of its boring-faculty.—*Comptes Rendus*, January 3, 1870, tome lxx. pp. 41–43.

British Killer or Orca. By Dr. J. E. GRAY, F.R.S. &c.

The examination of the skulls in the British Museum shows that two species of *Orca* or Killer inhabit the English coast.

1. The smaller has a broad beak, of nearly equal width for the greater part of its length. This is the skull figured by Cuvier in his work on fossil bones; and his figure has been copied by many authors. I propose to call this species *Orca latirostris*.

2. Judging from the size of the skull and the length of the skeleton in the British Museum, the other species must be considerably larger. The beak of the skull is elongated, and tapers nearly from the orbit to the front end, which is narrow and acute. I have distinguished this species as *Orca stenorhynchus*.

On the Antiquity of the Ass and Horse as Domestic Animals in Egypt. By M. F. LENORMANT.

The author remarks upon a statement of Professor Owen's, that neither the horse nor the ass was known in ancient Egypt—that is to say, up to the sixth dynasty, about 4000 years B.C. He says that the horse undoubtedly does not appear upon any monument of the ancient empire, or of the middle empire, including the twelfth and thirteenth dynasties. But when the monuments recommence under the eighteenth dynasty, about 1800 years B.C., the horse appears as an animal of habitual use in Egypt.

The ass, on the other hand, appears upon the oldest Egyptian monuments. It is frequent in the tombs of the ancient empire at Gizeh, Sakkarah, and Abousir. As early as the fourth dynasty, asses were as numerous in Egypt as they are at present: the tomb of Schafra-Ankh at Gizeh represents its occupant as the possessor of 760 asses; and those of other tombs boast of being the owners of thousands of asses.

The author remarks further that, considering the intimate relations existing between Egypt, Arabia Petraea, and Southern Palestine during the ancient empire, we may infer the absence of the horse in the latter countries at this period; and in support of this view he cites a painting from the tomb of Noumhotep at Beni-Hassan-el-Kadim, and also the evidence to be derived from the Book of Genesis, in which the horse is first mentioned in connexion